S/180/61/000/002/010/012
E071/E435

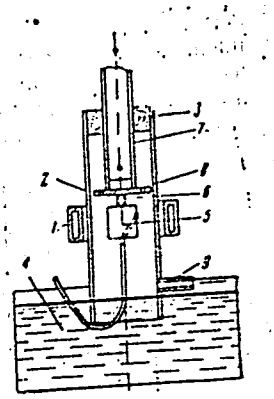
Rapid Nitration of ...

23 Soviet references.

SUBMITTED: June 8, 1960

Fig.1. Diagram of the apparatus for rapid nitriding.

1 - induction coil,
2 - quartz insulator
3 - stopper
4 - quenching liquid
5 - specimen tested
6 - holder for specimen and thermocouple
7 - tube for the supply of ammonia to the specimen
8 - centering ring with holes
9 - outlet tube

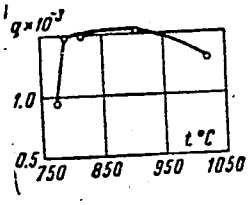


Card 9/14

S/180/61/000/002/010/012
E071/E435

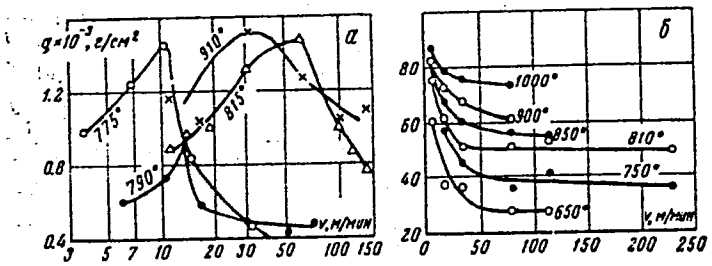
Fig.2. The amount of nitrogen absorbed by iron on nitration during the heating to various temperatures for hardening in 2 min at optimal rates of the supply of ammonia

q - increase in the weight, g/cm^2



S/180/61/000/002/010/012
E071/E435

Fig.3. The influence of the velocity of flow of ammonia v, m/min on the absorption of nitrogen by iron q x 10^{-3} g/cm^2 during nitration in 2 min (Fig.3a) and on the degree of dissociation of ammonia (Fig.3b).

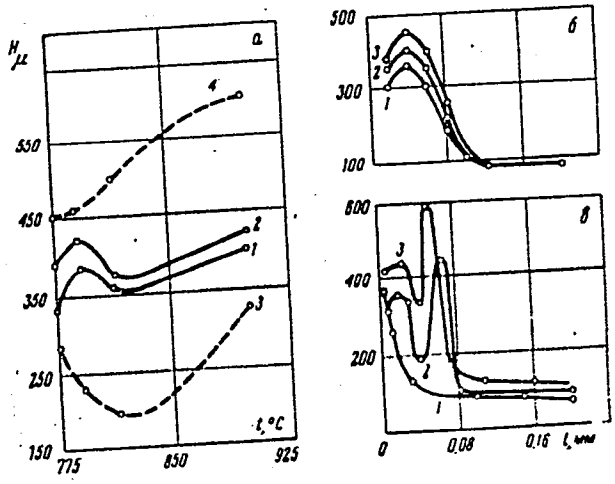


Card 11/14

S/180/61/000/002/010/012
E071/E435

Fig.5. Microhardness H_μ along the depth of the diffusion layer of nitrided iron

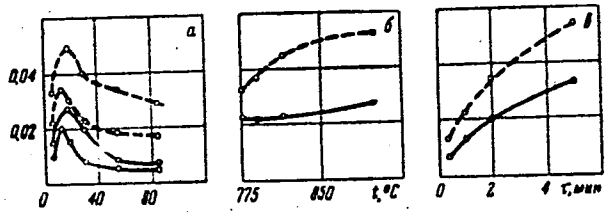
Fig.5a: after 2 min of heating to various temperatures for hardening
Curve 1 - external part of the γ-phase zone
Curve 2 - internal part of the γ-phase zone
Curve 3 - nitrided austenite
Curve 4 - nitrided martensite
Fig.5b - at 1020°C for 2 min
Curve 1 - at a gas velocity of 32 m/min
Curve 2 - at a gas velocity of 10 m/min
Curve 3 - at a gas velocity of 20 m/min.
Fig.5B - at 80°C for 22 sec
Curve 1 - at 815°C for 2 min
Curve 2 - at 910°C for 2 min
Curve 3 - ℓ - distance from the surface of the specimen, mm



Card 12/14

Rapid Nitration of ...

Fig.6. Dependence of the thickness of the ε-phase zone (continuous lines)
Fig.6a - dependence on the velocity of ammonia (at 815 and 910°C)
Fig.6b - dependence on the temperature of nitriding (2 min at a velocity of ammonia of 30 m/min)
Fig.6B - dependence on the duration of nitriding process (at 800°C). The corresponding changes in the summary thickness of the first and second zones are plotted in broken lines.



Card 13/14

S/180/61/000/002/010/012
E071/E435

Rapid Nitration of ...

Table.

1 - Conditions of treatment
2 - Microhardness, kg/mm^2, of the diffusion layer at various depths from the surface, mm
3 - zone of the ε-phase
4 - austenite-martensite zone
5 - nitrided ferrite zone

Режим обработки	Микротвердость, кг/мм², диффузионного слоя на различной глубине от поверхности, мм					
	зона ε-фазы		аустенитно-мартенситная зона		зона азотистого феррита	
	0.01	0.02	0.025—0.030	0.045—0.050	0.07	0.26
Азотирование при 815°	369	376	206	503	118	101
То же + отпуск 175°	402	401	246	374	95	90
Азотирование при 910°	427	444	328	595	160	123
То же + отпуск 175°	343	339	265	271	95	91

Card 14/14

SOV/126-7-4-17/26

AUTHOR: Prosvirin, V.I.

TITLE: Hardenability of Heat-Resisting Alloys

PERIODICAL: Fizika metallov i metallovedeniye, 1959, Vol 7, Nr 4, pp 622-625 (USSR)

ABSTRACT: When precipitation-hardening alloys are solution-treated, the rate of cooling during quenching is not, as a rule, controlled since it is generally assumed that the solid solutions are sufficiently stable and that no solid state transformation takes place even at comparatively slow rates of cooling. The results obtained by the author show that this assumption is not correct, at least in the case of alloys EI395 (Fe-base) and EI437A (Ni-base) studied in the investigation described in the present paper. The end-quenched bar method was used in this study. The test bars (130 mm long and 30 mm dia for alloy EI437A or 25 mm dia for alloy EI395) prepared from materials annealed for 10 hours at 900°C were heated in argon to 1180°C and held at the temperature for 2 hours, after which one end of the bar was water-quenched in a specially designed apparatus. The rate of cooling in various sections of the quenched specimen was recorded

Hardenability of Heat-Resisting Alloys

with the aid of an automatic oscillograph. Curves reproduced in Fig 1 show how the temperature (°C) of sections located at a distance of 3, 15 and 81 mm from the quenched end varied with time (sec). The mean rate of cooling at these and other sections was calculated by the method described by Nemchinskiy (Ref 1). The hardness (R_c - 100) measurements were taken on various sections of the test-bar both after quenching and after ageing at 600°C for periods varying from 1 to 250 hours. Curves plotted in Fig 2 show how the mean rate of cooling (V, °C/sec) during quenching through the 1180 - 600°C temperature range and hardness (R_c) of both alloys varied with the distance (mm) from the quenched end of the test-bar. Fig 3 shows the relationship between the hardness (R_c) of the quenched alloys and the rate of cooling (V). Finally, Fig 4 shows the effect of the duration (hours) of ageing at 600°C on hardness of various sections of the end-quenched bars. The top set of curves was plotted for the following sections of the test-bar EI395: 1 - the quenched end; 2,3 and 4 - 3,9 and 61 mm from the quenched end respectively. The bottom

Hardenability of Heat-Resisting Alloys

set of curves was plotted for alloy EI437A: 1 - quenched end; 2,3,4 and 5 - 3,15,29 and 51 mm from the quenched end, respectively. It will be seen that in both cases, hardness of the alloys after quenching and the character of the ageing curves were affected by the rate of cooling during quenching. These effects are different in the two investigated alloys and this is attributed to the fact that different number of phases of different nature are precipitated in these alloys. There are 4 figures and 2 Soviet references.

SUBMITTED: April 25, 1958

28 (5)
AUTHORS: Mortikov, V. D., Prosvirin, V. I.

SOV/32-25-8-33/44

TITLE: Determination of the Resistance of Plastic Deformation With the Instrument PMT-3 at Constant Size of Impressions

PERIODICAL: Zavodskaya laboratoriya, 1959, Vol 25, Nr 8, pp 999-1000 (USSR)

ABSTRACT: A new method was developed for the determination of the resistance against plastic deformation at a constant size of the impressions (I) to be carried out with the conventional instrument PMT-3. The microhardness of the sample at various stresses (S) is first measured on the indentor. 20-30 and more measurements of the diagonal (D) of the (I) are made and the arithmetical mean value of the (D) of each (S) is being determined. The obtained data is used for making an auxiliary diagram (AD) which illustrate the dependence of (D) from the concerned (S). The (D) of one (I) is then chosen and from the (AD) recorded for the various conditions of the alloys, the value of (S) corresponding to this (D) is determined. The obtained value of (S) serves for the recording of a new function between the (S) and any parameter (temperature, time etc), which characterizes the condition of the alloy. The susceptibility of the investigated alloy to surface strengthening can be evaluated

Card 1/2

from such a group of curves which refer to the volume of the displaced metal, after the disturbance of the coordinates' equidistance. The authors investigated according to this method the heterogenization of the solid solution of the alloy EI617 at a heating to 1200° (during 1, 3, 6, 12, 24, 36, 48 or 96 hours) and the subsequent tempering in water (+ 20°). Various (S) from 20 to 100 g were applied. The measuring results proved that heating to 1200° has a great influence on the strength needed for the formation of a constant plastic deformation of the alloy. A continuous change of the solid solution's condition occurs at high temperatures, as the resistance against plastic deformation changes. There are 4 figures.

FROSVIRIN, V. I.

Category : USSR/Solid State Physics -- Phase Transformation in Solid Bodies E-5

Abs Jour : Ref Zhur - Fizika, No 3, 1957, No 6655

Author : Frosvirin, V.I., Kveshinina, Ye.I.
Title : Effect of Alloying Elements on the Temper Brittleness of Structural Steels.

Orig Pub : Term. obrabotka i svoystva litoy stali. M., Mashgiz, 1955, 69-87

Abstract : It was established that addition of molybdenum up to 0.5% prevents the development of processes that cause the temper brittleness of structural chrome-nickel-molybdenum and chrome-mengenese-molybdenum steels. Greater additions of molybdenum (1% and above) do not effect the temper brittleness. Addition of tungsten up to a definite limit (up to 1.6% for the 35 KhGV steel) retard strongly the development of the temper brittleness of structural steels. X-ray diffraction, carbide, and metallographic investigation methods, as well as measurements of the internal friction and other properties have shown that molybdenum and tungsten, which enter into

Card : 1/2

Category : USSR/Solid State Physics - Phase Transformation in Solid Bodies E-5

Abs Jour : Ref Zhur - Fizika, No 3, 1957, No 6655

the α-solid solution up to a definite concentration, make it stable and prevent the separation of the carbides on the grain boundaries, a fact that is the fundamental cause of the development of temper brittleness. Additions of titanium, vanadium, and niobium do not prevent the development of temper brittleness in structural steels, i.e., after high-temperature tempering these elements are transformed fully into the carbide phase, owing to their great affinity to carbon.

Card : 2/2

PROSVIRIN, V.I., doktor tekhn. nauk, prof.; CHERNOV, L.F., inzh.

Characteristics of the development of thermal brittleness in the EI673 austenite steel. Vest. mash. 37 no.8:70-72 Ag '57. (MLRA 10:9)
(Steel--Heat treatment) (Metals--Brittleness)

SOV/180-59-2-3/34

AUTHOR: Prosvirin, V.I. (Riga)

TITLE: High-Temperature State of Unsaturated Solid Solutions (Vysokotemperaturnoye sostoyaniye nenasyshchennykh tverdykh rastvorov)

PERIODICAL: Izvestiya Akademii Nauk, SSSR, Otdeleniye Tekhnicheskikh Nauk, Metallurgiya i Toplivo, 1959, Nr 2, pp 13-18 (USSR)

ABSTRACT: Multi-component alloys, kept long at over their saturation temperature, undergo a continuous series of changes. The author describes work which has shown that these can cover the whole range from the formation of concentration zone to complete loss of strength of the second-phase crystals. The experiments were carried out on austenitic steel with different chromium and nickel contents (10.35 - 28.44 and 9.58 - 30.13%, respectively); types 15Kh10N20, 15Kh15N20, 15Kh20N20, 15Kh30N20, 15Kh20N10, 15Kh20N30. Cast cylindrical (8 mm diameter) specimens were heated in a neutral atmosphere for 1, 3, 12, 24, and 48 hours at 1200°C and 1, 3, 6, 18 and 24 hours at 1300°C and then cooled in water at 20°C. Micro-sections were made and the microhardness was determined at 200 points on each with a PMTZ machine at a load of

Card 1/4

High-Temperature State of Unsaturated Solid Solutions

50 g. Some specimens were aged. Electron-metallographic methods were used to study structures. Frequency diagrams were prepared. Fig 1 shows the diagrams for steels differing in chromium content and Fig 2 for those differing in nickel content, after heating at 1300 °C. The diagrams are similar. Mean micro-hardness values are plotted in Fig 3 as functions of hours of heating at 1200 and 1300 °C for different chromium-contents (marked at the curves). Discussing these results and those obtained with air cooling, the author points out that the decrease in concentration non-uniformity at the start of heating was produced by the presence of large concentration gradients of a segregational nature in the solid solution. Fig 4 shows the difference between maximal and minimal values of microhardness in relation to the chromium content in the initial state (curve a) and after 3 hours heating at 1300°C (curve b); (the greater the difference the greater the non-uniformity of the distribution of the component elements). Curve a shows that this increases with chromium content but as seen from curve b , is greatly reduced after heating. The frequency curves

Card 2/4

High-Temperature State of Unsaturated Solid Solutions

(Figs 1 and 2) are displaced towards higher micro-hardness values with heating for 18 hours, which the author attributes to effects similar to those in the pre-transition stages of solid-solution decomposition, including the formation of concentration complexes with a higher resistance to plastic deformation. New solid-solution states are continually created by the diffusion processes taking place, leading to effects previously discussed by the author and V.D. Mortikov (Ref 17). This is reflected by the relation between the occurrence of equal micro-hardness values and the time of heating (Fig 5). In view of the large number of atoms which can be included in the complexes large deviations in concentration from the average initial value for the solid solution are possible, and this can lead to local attainment of saturation concentrations under the given temperature conditions. Electron photomicrographs (X 7400) in Fig 6 show the initial structure and those obtained after 18 and 24 hours heating and at 1300°C of 15Kh20N20 alloy and illustrate the development of second-phase crystals. The duration of heating at

High-Temperature State of Unsaturated Solid Solutions

1300°C was found also to affect the change in microhardness in subsequent heating at 750°C. Fig 7 shows the changes as functions of heating time at 750°C for the alloys previously subjected to heating at 1300°C for various durations.

V.D. Mortikov participated in the work.

Card 4/4 There are 7 figures and 17 references, 13 of which are Soviet, 3 English and 1 French.

SUBMITTED: October 6, 1958

SOV/129-59-6-6/15

AUTHORS: Prosvirin, V.I., Doctor of Technical Sciences, Zudin, I.F., Candidate of Technical Sciences and Myasoyedov, A.N., Engineer

TITLE: Diffusion Metallic Cementation in Aerosols (Diffuzionnaya metallotsementatsiya v aerozolyakh)

PERIODICAL: Metallovedeniye i termicheskaya obrabotka metallov, 1959, Nr 6, pp 24 - 30 and 35 - 38 (USSR)

ABSTRACT: The here described method of diffusion metallic cementation in aerosols, for which an "Author's Certificate" was issued in 1950, permits surface saturation of steel with various metals (aluminium, chromium, manganese, etc.) in gases containing suspended solid-phase particles. This can be effected by means of equipment, a diagrammatic sketch of which is shown in Figure 1, p 25. After heating in a furnace, the component is quickly charged into a retort and a dosing apparatus is put into operation which contains double or treble the required feed rate of the mixture (during the first 10 to 15 min of heating) so as to achieve rapid filling of the retort with the reaction products of the mixture in order to prevent oxidation of the component. Every 1 to 2 min the dosing apparatus feeds

Card1/6

working mixture into the retort in small portions. A suitable substance for alitising is a mixture of fine aluminium powder and ammonium chloride. A part of the aluminium powder will be suspended in the gaseous phase, forming aerosols. At elevated temperatures the ammonium chloride evaporates and decomposes, forming hydrogen chloride, nitrogen and hydrogen. Under conditions of low-temperature heating, from 300 - 400 °C, the reaction proceeds with the formation of ammonia and hydrogen chloride. The hydrogen chloride is the basic gas which participates in the subsequent reactions of chlorination of the metals. The chemical reactions during chlorination were investigated by means of a test rig, as shown in Figure 2. The kinetics of chlorination of Al, Cr, Mn, Ti, Mo, Fe and Ni, in a hydrogen chloride atmosphere at 700, 900 and 1 100 °C, were investigated on the basis of the changes in the volume of the reaction products. The results, for durations of up to 90 min, are graphed in Figure 4. The obtained results are discussed in some detail. Experiments are also described which have been

Diffusion Metallic Cementation in Aerosols

made on the diffusion of aluminium and chromium from the gaseous phase. Although metallic powder was present in a suspended state, special experiments show that the diffusion activity of the medium is predominantly influenced by the vapour phase. In the experiments, the gaseous medium formed as a result of heating of the active mixture consisting of aluminium, aluminium chloride and sodium chloride, which was placed into a porcelain boat; 0.25 g sodium chloride was added for the purpose of stabilising the activity of the forming gaseous products. The low-carbon steel plates (15x10x2 mm) and wire of 0.7 mm were placed above the boat, not in contact with the mixture. The boat with the steel specimens was then charged into a porcelain tube and placed into a cold furnace. Before heating up, the tube was flushed with pure nitrogen for the purpose of ejecting air oxygen. In all the experiments the heating up to a temperature of 950 °C lasted for about 30 min, which temperature was held for 2 hours. Following that, the specimens were cooled in the furnace for a duration of 10 min after each experiment; the aluminium saturation of the wire, the microstructure

Diffusion Metallic Cementation in Aerosols

and the heat-resistance of the specimen at 900 °C (for 50 hours) and also the quantity of mixture carried away from the boat as a result of vapour formation were determined. The results of these experiments are entered in Table 2. The heat resistance corresponded to the quantity of absorbed aluminium - the higher the aluminium absorption, the higher was the heat resistance. Experiments with addition to the charge of a mixture consisting of NaCl, Al and $AlCl_3$ showed that it is possible to alitise without introducing into the mixture ammonium chloride or aluminium chloride. The results of chromating experiments with an active mixture consisting of chromium, sodium chloride and aluminium chloride are entered in Table 4. In the last part of the paper, the authors discuss the factors which influence the metallic cementation in aerosols. For alitizing, they recommend an active mixture consisting of aluminium powder, sodium chloride and ammonium chloride with the weight ratios 4:2:1. Experiments have shown that forced circulation must be applied to achieve satisfactory alitising. The results obtained in alitizing experiments

Diffusion Metallic Cementation in Aerosols

with iron and steel specimens are entered in Table 5. In Figure 5, the heat resistance at 900 °C is graphed for iron alitized at 950 °C for durations of 2 hours and 4 hours. In Figure 6, the influence of the alitizing temperature, for an alitizing duration of 2 hours, and of the duration of the alitizing, for an alitizing temperature of 950 °C, is graphed. Interesting results were obtained in experiments relating to simultaneous saturation of steel strips with Al and Cr; these and also results obtained with simultaneous saturation of steel with Al and Mn are entered in Table 6. In Figure 7, the distribution as a function of the depth is graphed of Al and Cr in the diffusion layer of austenitic steel after Al-chromation in aerosols at 1 050 °C for 6 hours. In Figure 8, the distribution is graphed of Mn in the diffusion layer of austenitic steels after simultaneous saturation with Mn and Al by diffusion for 6 hours at 950 and 1 050 °C, respectively.

Diffusion Metallic Cementation in Aerosols SOV/129-59-6-6/15

There are 8 figures and 6 tables.

ASSOCIATION: TsNIITMASh

Card 6/6

PROSVIRIN, V.I.; FEDOSOV, A.I.

Erosion wear and wear protection of austenite steels used for gas turbine vanes [with summary in English]. Inzh.-fiz.zhur. no.1:6-14 Ja '59. (MIRA 12:1)

1. Tsentral'nyy nauchno-issledovatel'skiy institut tekhnologii i mashinostroyeniya, Moskva.
(Steel--Hardening) (Mechanical wear)

SOV/129-58-10-1/14

AUTHOR: Prosvirin, V. I., Doctor of Technical Sciences, Prof

TITLE: Phase Composition of Chromium-Nickel Austenitic Steels with Titanium (Fazovyy sostav khromonikelevykh austenitnykh staley s titanom)

PERIODICAL: Metallovedeniye i Obrabotka Metallov, 1958, Nr 10, pp 2-5 (USSR)

ABSTRACT: Presence of titanium in austenitic steels leads to the formation in such steels of TiC and of the $(FeNi)_3Ti$ type intermetallide. Analysis of data on the formation in the steels of titanium containing phases (Table 1) permits deducing certain relations.

Composition of the secondary phases after hardening.

As can be seen from the graph, Fig.1 (Influence of the heating temperature prior to hardening on the solubility of the secondary phases), increase of the temperature of heating prior to hardening from 900 to 1250°C for a duration of one hour does not bring about a complete dissolution of the secondary phases; prior to hardening the specimens were subjected to long duration annealing at 850°C. The weight of the sediment indicates that for alloys of similar chemical compositions the quantity of

Card 1/6

the secondary phases after hardening is larger in steels which contain less titanium. The content of nickel in the sediment of secondary phases after high temperature heating is relatively small and after hardening from 1250°C there is no nickel at all in the secondary phases. Titanium can be detected in the secondary phases after hardening from any temperature, Fig.2 (Influence of the heating temperature prior to hardening on the quantity of titanium in the secondary phases). The lower the titanium content of the steel, the greater will be the extent of decrease in the titanium content of the sediment with increasing temperature of heating prior to hardening. Thus, for a titanium content of about 1% about 0.20-0.25% titanium will additionally enter into the solution if the heating temperature is increased from 900 to 1250°C; for a steel containing about 2% Ti the change in the solubility with changing heating temperatures is considerably smaller. Such a behaviour of the titanium may be linked with the presence of two compounds; the solubility of the titanium intermetallide is apparently more dependent on

Phase Composition of Chromium-Nickel Austenitic Steels with Titanium

the temperature than the solubility of titanium carbide. The differing inclinations of the curves of Fig.2 indicate differing relations between the quantities of these phases. The larger the inclination the more titanium intermetallide will there be in the secondary phases. X-ray diffraction analysis of the sediment of the secondary phases after hardening steels from 1250°C (carried out by Candidate of Technical Sciences Ye. I. Onishchik) revealed the presence of only one titanium carbide in spite of the fact that the chemical analysis (carried out by Ye. I. Uryupina) showed that chromium is also present in the sediment. In this case a somewhat larger quantity of titanium in the sediment is observed in steels with higher carbon contents. It is also pointed out that the quantity of carbon in steels is adequate for combining into carbide the entire titanium which does not pass into the solid solution at 1250°C.

Composition of the secondary phases after ageing.

Ageing after hardening from 1250°C leads in the investigated steels to intensive separating out of secondary

Phase Composition of Chromium-Nickel Austenitic Steels with Titanium

phases, Fig.3 (graph expressing the quantity of the electrolytic precipitate as a function of the ageing temperature for an ageing duration of 100 hours). However, the intensity of separating out is not the same for various steels and various temperatures. With increasing titanium content, the solid solution becomes more stable. It can be seen from Fig.4 that the quantity of titanium in the secondary phases is strongly dependent on the ageing temperature. In the case of ageing at 600°C a considerable amount of titanium is separated out for steels with lower titanium contents; if the titanium content is increased, an appreciable separating out of titanium during ageing will commence at more elevated temperatures. The content of nickel in the secondary phases is low up to 700°C and begins to increase with increasing ageing temperature up to 800°C (Table 2). After ageing for 100 hours at 800°C, the titanium intermetallide can be clearly detected on the X-ray diffraction patterns. No intermetallide was detected after ageing at 700°C and lower temperatures. Apparently

Phase Composition of Chromium-Nickel Austenitic Steels with Titanium

the intermetallide formation during ageing is preceded by a more complete combination of carbon into titanium carbide. Not only titanium and nickel but also iron and chromium participate in the formation of secondary phases, although the most characteristic phases are titanium compounds. To some extent the change in the composition of the secondary phases during ageing can be evaluated from the difference in the weight of the sediment and the quantity of titanium with nickel. As an example, the graph, Fig.5, shows the change in the weight of iron and other elements and also of titanium and nickel in the sediment after ageing of steel with 0.68 and 2.25% Ti. The formation of secondary phases during ageing leads to an appreciable redistribution of the alloying elements between the solid solution and the secondary phases. The most intensive flow of atoms of iron and chromium from the solid solution is observed during ageing at 800°C; this coincides with the appearance on the secondary phases of titanium intermetallide. It can be assumed that this

Card 5/6 intermetallide contains not only nickel but also other

Phase Composition of Chromium-Nickel Austenitic Steels with Titanium

elements. Change in the solubility of the alloying elements in the austenite during its decomposition brings about peculiar changes in the parameters of the austenite lattice. Thus, in steel with 1.02% Ti an increase in the ageing temperature for a duration of 100 hours will bring about at first an increase in the lattice parameter and then a decrease, Fig.6 (Change of the weight of the electrolytic sediment and lattice period as a function of the ageing temperature). As regards the main elements, the average chemical composition of the secondary phases does not change in the case of ageing of very long duration (up to 1700 hours, Table 3); there is also little difference in the quantity of secondary phases which separate out after 100 hours ageing as compared to 1700 hours ageing. There are 6 figures and 3 tables.
(Note: This is a complete translation except for the table captions)

1. Steel alloys—Phase studies 2. Titanium—Metallurgical effects
3. Austenite—Metallurgical effects 4. Steel alloys—Metallurgy

SOV-129-58-6-3/17

AUTHORS: Prosvirin, V. I. (Dr.Tech.Sci.Prof.), Chernov, L.F. (Engineer)

TITLE: Change of Certain Properties of the Steel EI612 as a Function of the Degree of Decomposition of the Austenite (Izmeneniye nekotorykh svoystv stali EI612 v zavisimosti ot stepeni raspada austenita)

PERIODICAL: Metallovedeniye i Obrabotka Metallov, 1958, Nr 6, pp 10-14 (USSR)

ABSTRACT: The results are described of the study of certain properties of steel EI612 as a function of the temperature and duration of heating. The investigated steel contained 0.10% C, 14.3% Cr, 35.8% Ni, 2.6% W, 1.4% Ti and 0.37% Al. The change in the austenite grain size of this steel and the hardness as a result of one hour's heating at various temperatures is graphed in Fig.1. In Fig.2 the changes are graphed in the hardness and the impact strength of hardened steel EI612 as a function of the heating duration at 750°C. In Fig.3 the changes are graphed of the impact strength of the tested steel as a function of the duration of the heating at various temperatures between 650 and 1000°C. In Fig.4 the changes are graphed of the properties of the investigated steel in the hardened state during heating at 750°,

Card 1/3

Change of Certain Properties of the Steel EI612 as a Function of the Degree of Decomposition of the Austenite.

800° and 650°C. Fig.5 shows the changes in the percentual content of the secondary phases as a function of the duration of the heating at 750°C. The following conclusions are arrived at: (1) The most intensive embrittlement of the tested steel in the hardened state at all the test temperatures took place during the first one to two hours of heating. This is attributed to the greater inclination of the grain boundaries to develop brittle failures when filled up even with small quantities of secondary phases. (2) For relatively high heating temperatures of the steel an intensive decrease of the impact strength during the first hour is superseded by a rise in the case of heating of longer duration. This increase in the impact strength will occur faster at higher temperatures (1000-850°C). At 750-800°C a stabilisation takes place of the values of the impact strength at the relatively high level of 16-18 kg/cm^2.

Change of Certain Properties of the Steel EI612 as a Function of the Degree of Decomposition of the Austenite.

(3) The secondary phases which separate out of the solid solution of the tested steel at 750°C appear to be the phases $Ni_3(Al, Ti)$ and TiC. (4) The temperature brittleness which developes in the case of disperse decomposition of the austenite is accompanied by changes in the strength and the plastic properties of the tested steel. The lower the heating temperature which brings about a decomposition of the austenite, the more pronounced will be the change in the properties of the steel. In this case (decomposition at 650°C), an appreciable increase in the hardness and strength and a decrease in plasticity take place in addition to a decrease of the impact strength. (5) Development in the steel of temperature brittleness is accompanied by a change in the micro structure which can be detected at large magnifications. The fact that the material gets out of the brittle state is attributed to coagulations of the α'-phase. There are 5 figures and 2 tables.

ASSOCIATION: TsNIITMASh

1. Steel - Properties 2. Austenite - Decomposition
3. Austenite - Temperature effects 4. Steel - Test methods

Card 3/3

PROSVIRIN, V. I.

Prosvirin, V. I., Chernov, L. F., "Kinetics of Thermal Friability of Several Austenitic Steels."

in book Research on Heat Resistant Alloys, pub by Acad. Sci. USSR, Moscow, 1956, 100 pp.

Inst. Metallurgy im A. A. Baykov

PROSVIRIN, V.I

USSR / Phase Conversions in Solids. E-5

Abs Jour : Ref Zhur - Fizika, No 4, 1957, No 9307

Author : Prosvirin, V.I., Kvashnina, Ye. I.
Title : Concerning the Nature of the Temper Brittleness of Pearlite Steels.

Orig Pub : Metallovedeniye i obrabotka metallov, 1956, No 2, 24-49

Abstract : It is shown for structural steels that the kinetics of the development of brittleness is in principle the same for all brands of steel. Using the methods of carbide and X-ray structural analysis it is established that the secondary phase in the viscous and brittle states is the carbide of the cementite type with dissolved carbide-forming elements. The crystallographic structure of the secondary phase does not change when the steel changes from the viscous state into brittle, but the amount of this phase increases. An increase the amount of carbide phase as the result of hea-

Card : 1/2

USSR / Phase Conversions in Solids. E-5

Abs Jour : Ref Zhur - Fizika, No 4, 1957, No 9307

Abstract : ting is observed in the zone of the development of the brittleness also after a prolonged high-temperature tempering; this is not observed when the steel is alloyed with 0.5% Mo. This action of Mo is observed when the contents of the latter is optimum for each brand of steel. It is established that in the case of optimum content, all the molybdenum is in solution and retards strongly the carbide formation. It is proposed that this also prevents the development of brittleness. The mechanism of the development of brittleness is connected with the fact that as the limit of solubility of carbon in α-iron is approached in tempering, the separation of the last portions of carbon is strongly retarded. Under these conditions new portions of carbide are formed in the boundary zones of the crystals in plate-like forms, which causes a reduction in the impact viscosity.

Card : 2/2

PROSVIRIN, V.I.

PROSVIRIN, V.I., doktor tekhn.nauk, prof.; CHERNOV, L.F., inzhener.

Some characteristic changes in the properties of 10Kh25N20 austenitic steel. Metalloved.i obr.met. no.10:5-12 O '57. (MIRA 10:11)

1. TSentral'nyy nauchno-issledovatel'skiy institut tekhnologii i mashinostroyeniya.
(Steel--Metallography)

PROSVIRIN, V.L. (Riga)

High temperature state of unsaturated solid solutions. Izv. AN SSSR. Otd. tekh. nauk Mat. i topl. no.2:13-18 Mr-Ap '59. (MIRA 12:6)

(Solutions, Solid)

MAYSTROV, L.Ye., PROSVIRKINA, S.K.

Popular wooden calendars. Ist.-astron. issl. no. 6:279-298 '60. (MIRA 14:2)
(Calendars, Runic)

BERLIN, A.A.; PETROV, G.S.; PROSVIRKINA, V.F.

Investigation of the chemical mechanics of polymers. Part 3: Mechanical and chemical processes during the mastication of polyvinyl chloride. Zhur.fiz.khim. 32 no.11:2565-2570 N '58. (MIRA 12:1)

1. Institut plasticheskikh mass, Moskva.
(Ethylene) (Elastomers)

PETROV, G.S.; PROSVIRKINA, V.F.

Effect of hexamethylenetetramine on the conversion of polyvinylchloride into a tridimensional polymer. Zhur. prikl. khim. 30 no.11:1660-1668 N '57. (MIRA 11:2)

1. Moskovskiy nauchno-issledovatel'skiy institut plastmass.
(Hexamethylenetetramine) (Ethylene) (Polymers)

SOV/76-32-11-16/32

5(4), 15(9)

AUTHORS: Berlin, A. A., Petrov, G. S., Prosvirkina, V. F.

TITLE: Investigations in the Field of the Mechano-Chemistry of Polymers (Issledovaniya v oblasti mekhanokhimii polimerov) III. On the Mechano-Chemical Processes in the Mastication of Polyvinyl Chloride (III. O mekhanokhimicheskikh protsessakh pri val'tsevanii polivinilkhlorida)

PERIODICAL: Zhurnal fizicheskoy khimii, 1958, Vol 32, Nr 11, pp 2565-2570 (USSR)

ABSTRACT: The mechanism and the kinetics of the plasticization process of polyvinyl chloride in the presence of softeners and phenol-formaldehyde resins in air are investigated. The processing was carried out on laboratory rolls with a friction number of 1.4 at a temperature of from 40 to 160°. An increase of the mastication temperature (Figs 1,2) decreases the limit of destruction, it hardly influences, however, the velocity of the plasticization in the first 3-5 minutes. The addition of the softener (dibutyl phthalate) at 40-60° decreases the destruction velocity (Fig 3), it has, however, little effect on the limit of destruction. Investigations of the thermo-

Card 1/3

dynamic properties with the apparatus by V. A. Kargin (in the modified type by L. A. Igonin) proved the observations made. A decrease of the mastication temperature leads to a decrease of the range of high elasticity. The increase of the content of softeners decreases the influence of the mastication on the change of the thermodynamic properties of the plasticization product (Fig 5). During the mastication of PVC in air reactive peroxide radicals are formed. Iodine has a specific acceptor effect on the polymer which depends on the mastication temperature. Mastications carried out with phenol-formaldehyde resins and PVC in the presence of softeners (20%) showed (Table 2) that one part of the resins (15-17%) with PVC forms products that cannot be extracted with methanol.
There are 6 figures, 2 tables, and 8 references, 5 of which are Soviet.

ASSOCIATION: Institut plasticheskikh mass, Moskva (Institute of Plastics, Moscow)

ACCESSION NR: AP4035097 S/0191/64/000/005/0004/0007

AUTHORS: Berlin, A. A.; Prosvirkina, V. F.

TITLE: Investigations in the area of the mechano-chemistry of polymers

SOURCE: Plasticheskiye massy[4], no. 5, 1964, 4-7

TOPIC TAGS: polyvinylchloride, mechanical chemical property, molecular weight distribution, suspension polymer, emulsion polymer, milling, plasticization, mechanical destruction, differential molecular weight distribution, benzoyl peroxide initiator, isobutyroazodinitrile initiator, differential viscosity

ABSTRACT: The molecular weight distribution of suspension and emulsion polyvinyl chloride polymerized with different initiators, and the change in the molecular weight distribution upon milling were investigated to determine the relationship between the molecular weight distribution of PVC produced under different conditions and its mechanical destruction during processing. From differential molecular weight distribution curves it was determined

Card 1/3

that the most defined and highest molecular weight fraction was obtained by suspension polymerization with benzoyl peroxide (brand PB); suspension polymerization with the azodinitrile of isobutyric acid (brand PF polymer) gave somewhat broader molecular weight distribution with a greater low molecular fraction. PB-1 and PF-1 grades of polymer were more uniform in molecular composition and contained less low molecular polymer than the PB-4 and PF-4 brands. The emulsion polymer with hydrogen peroxide initiator (brand M) contained more low molecular material and had a less defined maximum than the suspension polymers. By comparing the differential viscosity of the polymers before and after milling, the greatest change in molecular weight, i.e., the greatest mechanical destruction, was found in the PB polymer and the least in the M polymer, even though the average molecular weight was close. Thus polymerization conditions and nature of the initiator as well as fractional composition determine the weak spots in the polymer which are vulnerable to mechanical action. The average molecular weight was lowered (due to predominant rupture of the longest molecules) and the physical heterogensity was reduced on milling. The relative viscosity changes increased gradually on milling in

ACCESSION NR: AP4035097

going to the higher molecular weight fractions. No relationship was found between the changes in the Khaggins constant for the initial and the milled polymers; K' changed insignificantly on milling and its value was generally higher for the higher molecular weight fractions. Orig. art. has: 4 figures and 4 tables

ASSOCIATION: None

SUBMITTED: 00 ENCL: 00

SUB CODE: OC, MT NR REF SOV: 006 OTHER: 005

Card 3/3

PROSVIRKINA, V.F.

BERLIN, A.A.; PETROV, G.S.; PROSVIRKINA, V.F.

Chemical and mechanical transformations of poluvinylchloride during plasticization. Khim.nauka i prom. 2 no.4:522-523 '57. (MIRA 10:11)

1. Moskovskiy khimiko-tekhnologicheskiy institut im. D.I.Mendeleyeva.
(Ethylene)

BERLIN, A. A.; PROSVIRKINA, V. F.

Studies in the field of the [redacted]istry of polymers. Change in the fractional [redacted] of polyvinyl chloride during plasticizing. Plast. massy no. 5:4-7 '64. (MIRA 17:5)

Prosvirkina, V.F.

Effect of hexamethylenetetramine on the conversion of poly(vinyl chloride) into a tridimensional polymer. G. S. Petrov and V. F. Prosvirkina (Sci. Research Inst. Plastic Materials, Moscow). *Zhur. Prikhl. Khim.* 30, 1060-8 (1957).—Mixts. of poly(vinyl chloride) with hexamethylenetetramine (I), milled 20 min. at 130°, were compressed 15 min. under 131.5 kg./sq. cm. at 140°. The conversion into tridimensional polymer of the cylinders, 10 mm. in diam. and 4 mm. high, was detd. by the changes in soly. and swelling in cyclohexane and by the thermomech. method of Kargin, *et al.* (*C.A.* 43, 7294*f*; 14371*b*). The deformation D of the original poly(vinyl chloride) (II) (vitrification temp. 80°), increased continuously with the temp. from 20 to 210–20°, whereas that of mixts. contg. I passed through sharp max., the magnitude of D and the temp. of which decreased as the proporton of I, x, increased from 0.48 to 11.8%. The fluidity decreased to vanishing values at x = 11.5% in milled mixts. and x = 17.7% in mixts. which were compressed without preliminary milling. The loss in wt. and change in soly. and swelling of mixts. contg. I, milled before compression and heated at 130, 150, and 170° after compression, were detd. The loss in wt. and the swelling increased with the temp. and the soly. decreased. The loss in wt. increased with x, whereas the soly. and swelling decreased. The effects of diphenylamine and diphenylurea were similar to those of I but to a lesser degree. I accelerated the rate of formation of the tridimensional polymer, on heating, and increased the uniformity of distribution in the solid phase.

I. Bencowitz

L 35472-65 EWT(m)/EPF(c)/EPR/EWP(j)/T Pc-4/Pr-4/Ps-4 WW/RM
ACCESSION NR: AP4046894 S/0191/64/000/010/0009/0013

AUTHOR: Rodiyilova, L. A.; Akutin, M. S.; Budnitskiy, Yu. M.; Prosvirkina, V. F.; Kaminskaya, I. P.

TITLE: The effect of fractional composition on the mechanical properties and processability of polyarylate D-3 and D-4

SOURCE: Plasticheskiye massy, no. 10, 1964, 9-13

TOPIC TAGS: polyarylate, polycondensation, polymer mechanical property, polymer processability, turbidimetry, fractional precipitation, molecular weight distribution, polymer film

ABSTRACT: The relationship between the mechanical properties of polyarylates and [illegible] was investigated on polyarylates D-3 and D-4.

Card 1/3

L 35472-65
ACCESSION NR: AP4046894

tabulated and plotted. The differential curves show that the molecular weight distribution of polyarylates D-3 and D-4 fall in a rather narrow range and close to one another. The slightly higher polydispersity for polarylate D-3 is due to the different conditions of synthesis, particularly the concentrations of the

L 35472-65
ACCESSION NR: AP4046894

variation in mechanical properties with varying molding temperature, shape and molding time was also studied. The data, compared with those obtained for a polymer with a reduced viscosity of 1.97, show that the change in reduced viscosity does not affect the processing conditions for D-4. Orig. art. has: 6

PROSVIRNIN, A.

Improving designs for GAZ-51 and GAZ-63 trucks. Avt.transp. 32 no.3:27-30 Mr '54. (MLRA 7:8)

1. Zamestitel' glavnogo konstruktora Gor'kovskogo avtozavoda imeni Molotova.
(Motor trucks)

PROSVIRNIN, A.D.

ANOKHIN, V.I., kandidat tekhnicheskikh nauk; PROSVIRNIN, A.D., inzhener, retsenzent; FESTA, G.A., inzhener, retsenzent; AFANAS'YEV, L.I., kandidat tekhnicheskikh nauk, redaktor; SOKOLOVA, T.F., tekhnicheskiy redaktor

[Soviet automobiles; reference book] Sovetskie avtomobili; spravochnik. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1954. 725 p. (MLRA 7:10)
(Automobiles--Design and construction)

BORISOV, N.I.; PROSVIRNIN, A.D.

Models of motor vehicles manufactured at the Gorkiy Automobile Plant.
Avt.prom. no.11:6-13 N '60. (MIRA 13:11)

1. Gor'kovskiy avtozavod.
(Gorkiy—Automobile industry)

GOROKHOVSKIY, D.M.; GUTKIN, S.G.; ZISLIN, S.G.; KUZNETSKIY, K.D.; PELYUSHENKO, O.I.; POPOV, B.N.; YAKUBOVICH, I.Ye.; PROSVIRNIN, A.D., otv. red.; KNYAZEV, V.V., red.; YUNISOVA, M.I., tekhn. red.

[Motor vehicles manufactured at the Gorkiy Automobile Plant] Avtomobili Gor'kovskogo zavoda. Gor'kii, Gor'kovskoe knizhnoe izd-vo, 1963. 390 p. (MIRA 16:4)

1. Glavnyy konstruktor Gor'kovskogo avtozavoda (for Prosvirnin).
(Gorkiy--Motor vehicles)

BORISOV, V.I.; GOR, A.I.; NEVZOROV, A.M.; RYBINSKIY, D.A.; SOLOV'YEV, V.S.; EVART, G.V.; PROSVIRNIN, A.D., red.; VASIL'YEVA, I.A., red.; UVAROVA, A.F., tekhn. red.

[The M-21 "Volga" automobile; construction and maintenance] Avtomobil' M-21 "Volga"; konstruktsiia i tekhnicheskoe obsluzhivanie. [By] V.I.Borisov i dr. Pod red. A.D.Prosvirnina. Moskva, Mashgiz, 1962. 447 p. (MIRA 15:3)

1. Glavnyy konstruktor Gor'kovskogo avtomobil'nogo zavoda (for Prosvirnin).

(Automobiles)

PROSVIRNIN, A.D., inzh., red.; STUPIN, A.K., red.izd-va; UVAROVA, A.F., tekhn.red.

[Catalog of spare parts for GAZ-51A, GAZ-51Zh, GAZ-51P, GAZ-63A, GAZ-63D, GAZ-93, and GAZ-93A motortrucks] Katalog zapasnykh chastei gruzovykh avtomobilei modelei GAZ-51A, GAZ-51Zh, GAZ-51P, GAZ-63, GAZ-63A, GAZ-63D, GAZ-93 i GAZ-93A. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1960. 338 p. (MIRA 14:2)

1. Gor'kovskiy avtomobil'nyy zavod. Gorki.
(Motortrucks--Catalogs)

PROSVIRNIN, A.D., inzh., red.

[Catalog of spare parts for the M-20 "Pobeda" passenger automobile] Katalog zapasnykh chastei legkovogo avtomobilia M-20 "Pobeda." Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1960. 231 p. (MIRA 13:3)

1. Gor'kovskiy avtomobil'nyy zavod.
(Automobiles--Catalogs)

PROSVIRNIN, A.D.

Basic models of motor vehicles and engines to be manufactured at the Gorkiy and Zavolzhye Automobile Plants during the seven-year plan. Biul.tekhn.-ekon.inform. no.12:49-55 '60. (MIRA 13:12)
(Gorkiy--Automobile industry)
(Zavolzhye--Automobile industry)

PROSVIRNIN, A.D., inzh., red.; STUPIN, A.K., red.izd-va; UVAROVA, A.F., tekhn.red.

[Catalog of spare parts for models M-21, M-21A, M-21B, M-21D, M-21E, M-21I, and M-21K of the "Volga" passenger automobile] Katalog zapasnykh chastei legkovogo avtomobilia "Volga" modelei M-21, M-21A, M-21B, M-21D, M-21E, M-21I i M-21K. Moskva, Gos. nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1960. 263 p. (MIRA 13:3)

1. Gor'kovskiy avtomobil'nyy zavod.
(Automobiles--Catalogs)

Prosvirnin, Aleksandr Dmitriyevich

ZISLIN, Samuil Grigor'yevich; IRKHIN, Ivan Vasil'yevich; PODOL'SKIY, Vladimir Ivanovich; PROSVIRNIN, Aleksandr Dmitriyevich; BORISOV, N.I., red.; YEGORKINA, L.I., red.; UVAROVA, A.F., tekhn.red.

[Collection of chassis designs for GAZ-51, GAZ-63, GAZ-63A automobiles; plans for assembling and constructing] Atlas konstruktsii shassi avtomobilei GAZ-51, GAZ-63, GAZ-63A; chertezhi uzlov i rabochie chertezhi detalei. Pod obshchei red. N.I.Borisova. Moskva, Gos. nauchno-tekhn.izd-vo mashinostroi. lit-ry, 1957. 215 p. (MIRA 10:12)
(Motortrucks--Bodies)

PROSVIRNIN, A.D., inzh., red.

[Catalog of spare parts for the GAZ-53F motortruck] Katalog zapasnykh chastei gruzovogo avtomobilia GAZ-53F. Moskva, Mashinostroenie, 1964. 187 p. (MIRA 17:12)

1. Gor'kovskiy avtomobil'nyy zavod, Gorki.

PROSVIRNIN, A. D.

BELYSHEV, Valentin Nikolayevich; BORISOV, Vitaliy Ivanovich; PROSVIRNIN, Aleksandr Dmitriyevich; SHNEYDER, Georgiy Konstantinovich; LIPGART, A.A., prof., red.; AVAKIMOV, G.G., red.izd-va; SHIKIN, S.T., tekhn. red.

[GAZ-51A motortruck; design, maintenance, and repair] Avtomobil' GAZ-51A; ustroistvo, obsluzhivanie i remont. Izd. 2., ispr. i dop. Pod obshchei red. A.A.Lipgarta. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit. lit-ry, 1958. 515 p. (MIRA 11:7)
(Motortrucks)

PROSVIRNIN, G.Yu.

Nature of the stresses inflicted to motion-picture films in the contact printing on a tooth sprocket. Trudy LIKI no.8: 25-36 '62. (MIRA 16:6)

1. Kafedra kinofotoapparatury Leningradskogo instituta kinoinzhenerov.
(Motion-picture photography--Films)
(Strains and stresses)

PROSVIRNIN, K. S.

115

PHASE I BOOK EXPLOITATION SOV/5411

Konferentsiya po fiziko-khimicheskim osnovam proizvodstva stali. 5th, Moscow, 1959.

Fiziko-khimicheskiye osnovy proizvodstva stali; trudy konferentsii (Physicochemical Bases of Steel Making; Transactions of the Fifth Conference on the Physicochemical Bases of Steelmaking) Moscow, Metallurgizdat, 1961. 512 p. Errata slip inserted. 3,700 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut metallurgii imeni A. A. Baykova.

Responsible Ed.: A. M. Samarin, Corresponding Member, Academy of Sciences USSR; Ed. of Publishing House: Ya. D. Rozentsveyg. Tech. Ed.: V. V. Mikhaylova.

Card 1/16

Physicochemical Bases of (Cont.) SOV/5411

PURPOSE: This collection of articles is intended for engineers and technicians of metallurgical and machine-building plants, senior students of schools of higher education, staff members of design bureaus and planning institutes, and scientific research workers.

COVERAGE: The collection contains reports presented at the fifth annual convention devoted to the review of the physicochemical bases of the steelmaking process. These reports deal with problems of the mechanism and kinetics of reactions taking place in the molten metal in steelmaking furnaces. The following are also discussed: problems involved in the production of alloyed steel, the structure of the ingot, the mechanism of solidification, and the converter steelmaking process. The articles contain conclusions drawn from the results of experimental studies, and are accompanied by references of which most are Soviet.

Physicochemical Bases of (Cont.)

KIGEL', L.S., inzh.; Klyuyev, Yu.B., inzh.; PROSVIRNIN, V.D., inzh.

Modernization of Sterling system boilers converted to operate on fuel oil with high sulfur content. Prom. energ. 18 no.8:26-29 Ag '63. (MIRA 16:9)

(Boilers)

GORDEYEVA, M.N.; PROSVIRYAKOV, V.D.

Separation of beryllium from aluminum and iron by ions exchange.
Uch. zap. LGU no.297:5-9 '60. (MIRA 13:11)
(Beryllium)

KLYUYEV, Yu.B., inzh. (Sverdlovsk); KIGEL', L.S., inzh. (Sverdlovsk); PODKORYTOV, A.P., inzh. (Sverdlovsk); PROSVIRNIN, V.D., inzh.

Replacement of the primary heat carrier (steam with water) in hot water supply systems of central heating boilers. Energetik 13 no.6: 10-11 Je '65. (MIRA 18:7)

PICHUGIN, A.A., dotsent, kand.tekhn.nauk; BOCHAROV, Ye.V., inzh.. Prinimali uchastiye: KUZ'MINSKIY, A.G., inzh.; VORONKINA, M.A., inzh.; FEDOROV, A.A., inzh.;BELOUSOV, M.A., inzh.ekonomist; PROSVIRNIN, G.V., inzh.; KNIGINA, G.I., dotsent, kand.tekhn.nauk; LESNIKOV, V.V., dotsent, kand.tekhn.nauk; SIDOROV, A.K., dotsent, kand. arkhitektury; KARTASHOV, A.A., arkhitektor; BARITSKIY, F.F., dotsent, kand.tekhn.nauk; KULISHOV, D.A., prof.; ZDESENKO, G.M., kand.tekhn. nauk; ALEKSANDRENKO, A.I., dotsent, kand.tekhn.nauk; STREL'NIKOV, G.Ye., kand.tekhn.nauk; VANEYEV, V.A., assistent; CHEREPKO, P.A., dotsent. SUSHINSKIKH, A.F., inzh., retsenzent; MEN'SHIKOV, P.N., red.; SUBBOTINA, G.M., tekhn.red.

[Manual for rural builders] Spravochnik proizvoditelia rabot sel'skokhoziaistvennogo stroitel'stva. Novosibirsk, Novosibirskoe knizhnoe izd-vo. Vol.1. 1959. 673 p. Vol.2. 1959. 677-1191 p. (MIRA 13:2)

(Farm buildings)

PROSVIRNIN, V.M.

AUTHORS: Rykunov, L.N. and ~~Prosvirnin, V.M.~~ SOV/49-58-8-10/17

TITLE: Distortions of the Azimuths of Microseism Sources due to Conditions of Propagation (Ob iskozhenii azimutov na istochnik mikrosesym, vyzyvayemom usloviyami ikh rasprostraneniya)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Geofizicheskaya, 1958, Nr 8, pp 1026 - 1028 (USSR)

ABSTRACT: It has been shown that the three-station method is the most effective for determining the co-ordinates of microseismic sources (Ref 1-3). This method is based on the assumption that the azimuth of the microseisms coincides with that of the source. However, this is improbable since a part of the microseism path is along the ocean floor and the layer of water above is of the same order of thickness as the microseismic waves (assumed surface Rayleigh waves).
Several authors have considered the influence of this liquid layer (Refs 4-7). The most interesting conclusion is that the phase velocity of the Rayleigh waves depends on the relation of wavelength to thickness of liquid layer, if these two are comparable. In this case,

Card1/5

Distortions of the Azimuths of Microseism Sources due to Conditions of Propagation

Stoneley (Ref 7) showed that the direction of propagation of the waves would be altered owing to their refraction - the refraction obeying the normal sine law. This was confirmed by Jeffreys.
The application of these ideas to microseisms was first carried out by Darbyshire (Refs 8, 9), who explained the amplitude anomalies in microseism traces made in Bermuda and Britain as due to the presence of a varying liquid depth. The present work is devoted to pointing out the errors which can arise in the three-station method due to the passage of waves along ocean floors.
The formulæ shown in the article have been taken from Ref 10 in order to construct graphs of the phase velocity of Rayleigh waves against ocean depth (for granite and basalt bottoms) (c is the phase velocity; a and b are the velocities of longitudinal and transverse waves in the medium; a_0 is the velocity of sound in water; ρ is the density of the medium; H is the thickness of the fluid layer; T is the period of the Rayleigh waves) (Figure 1). The following numerical values were used:

Distortions of the Azimuths of Microseism Sources due to Conditions of Propagation

a_o = 1.52 km/sec, T = 6 sec

$a = \begin{cases} 6.30 \text{ km/sec} - \text{basalt} \\ 5.50 \text{ km/sec} - \text{granite} \end{cases}$

$b = \begin{cases} 3.70 \text{ km/sec} - \text{basalt} \\ 3.30 \text{ km/sec} - \text{granite} \end{cases}$

$\rho = \begin{cases} 2.85 \text{ g/cm}^2 - \text{basalt} \\ 2.65 \text{ g/cm}^2 - \text{granite.} \end{cases}$

Press and Ewing (Ref 11) have shown that the Earth crust under the ocean at a depth of 2 km has a typical continental structure (granite-basalt), whilst for depths greater than 3.5 km, the structure is oceanic (basalt $\sim$ 5km). As can be seen from Figure 1, the curves corresponding to basalt and granite practically coincide for depths greater than 3.5 km. Hence, in the intermediate zone (2-3.5 km), the curves are sufficiently close for the difference in refractive effect to be neglected. At the same time, there is a definite change of velocity from 1.5 - 3.5 km (2.9 - 1.8 km/sec). Using a chart as suggested in Ref 12, several characteristic, microseismic propagation trajectories were calculated (Figure 2). Curve I-I denotes the normal path of cyclones in this region.

Curve II-II gives the same path as calculated from intersections of azimuths obtained at Pulkovo and Simferopol' without consideration of the refracting properties of the ocean. The difference can be very great ($\sim$ 1 000 km). The scheme outlined above can explain the absence of microseisms at some stations since the source can be so situated that the microseisms approach the refracting boundary at an angle greater than the critical angle for internal reflection. e.g. Simferopol' and cyclone (trajectory b) in Figure 2, Murmansk and trajectory η, etc. There is also the possibility of microseisms arriving from different directions (trajectories ∂ and e). Thus, in measuring the direction of microseisms back to their source, the sine law must be applied at each refracting boundary to find the right point. In determining the source co-ordinates by this method, the transitional effect from oceanic basalt to continental granite can be ignored but the refracting effect of a variable-depth ocean cannot.

SOV/49-58-8-10/17

Distortions of the Azimuths of Microseism Sources due to Conditions of Propagation

The authors thank Ye.F. Savarenskiy and M.V. Veshnyakov for their advice.
There are 2 figures and 12 references, 8 of which are Soviet and 4 English (1 Soviet reference is a translation from English).

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova (Moscow State University imeni M.V. Lomonosov)

SUBMITTED: April 18, 1958

Card 5/5 1. Microseisms---Mathematical analysis

BRUSHNEVSKAYA, G.A.; PROSVIRNINA, N.N.

Some materials on the effectiveness of treating bronchial asthma by acupuncture according to clinical and physiological data. Sbor. trud. GMI no.9:176-183 '62. (MIRA 17:2)

1. Iz kafedry normal'noy fiziologii (zav. kafedroy prof. A.T. Pshonik), klinika nervnykh bolezney (zav. kafedroy prof. L.M. Shenderovich, glavnyy vrach - A.Ye. Burgart) Krasnoyarskogo meditsinskogo instituta.

PROSVIRNINA, N.N.; BRUSHNEVSKAYA, G.A.

Effectiveness of acupuncture in sexual neuroses according to clinical and physiological data. Sbor. trud. GMI no.9: 210-218 '62. (MIRA 17:2)

1. Klinika nervnykh bolezney Krasnoyarskogo meditsinskogo instituta (zav. kafedroy prof. L.M. Shenderovich, glavnyy vrach A.Ye. Burgart) i kafedra normal'noy fiziologii (zav. kafedroy prof. A.T. Pshonik).

PROSVIRNINA, T. N., Candidate Med Sci (diss) -- "Aspects of the state and development of newborn children of ill mothers". Khar'kov, 1959. 10 pp (Khar'kov Med Inst), 200 copies (KL, No 24, 1959, 152)

1ST AND 2ND ORDERS — PROCESSES AND PROPERTIES INDEX — 3RD AND 4TH ORDERS

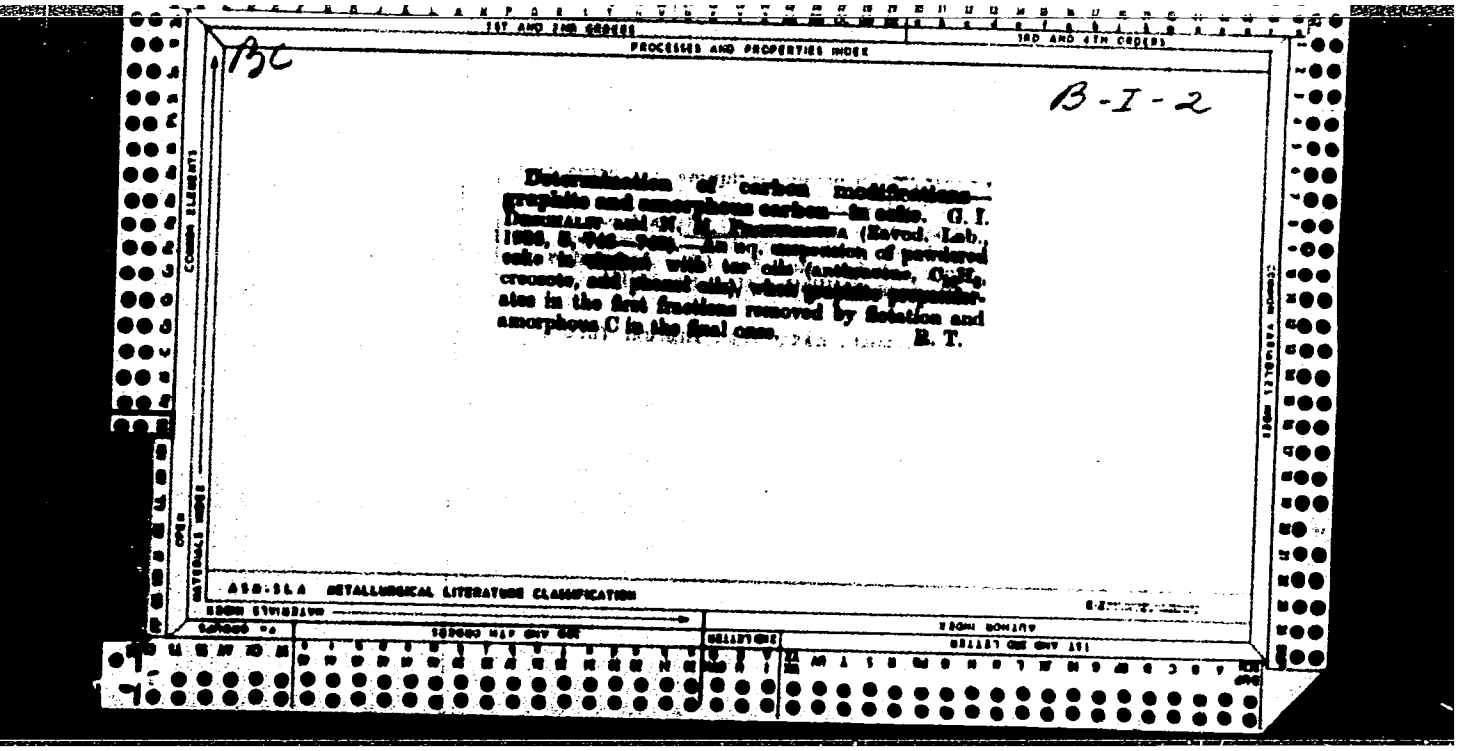
BC

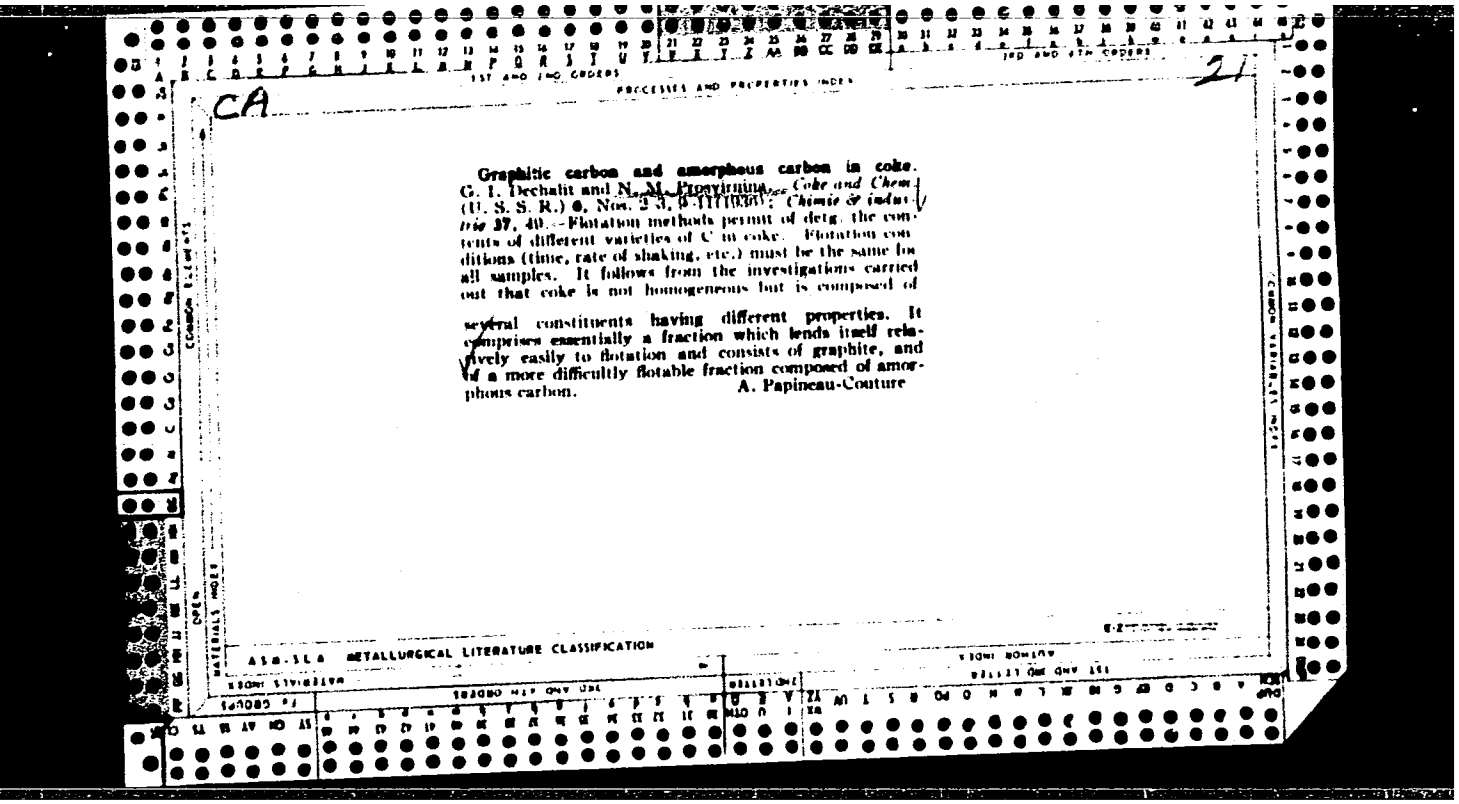
B - II - 2

Characteristics of macrostructure and extent of fissuring of axles. G. I. Dubchaliy and N. M. Prokhorenka (Zavod. Lab., 1937, 6, 103—104).—Rear's method is recommended. R. T.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

COMMON ELEMENTS — MATERIALS INDEX — AUTHOR INDEX — COMMON VARIABLES INDEX





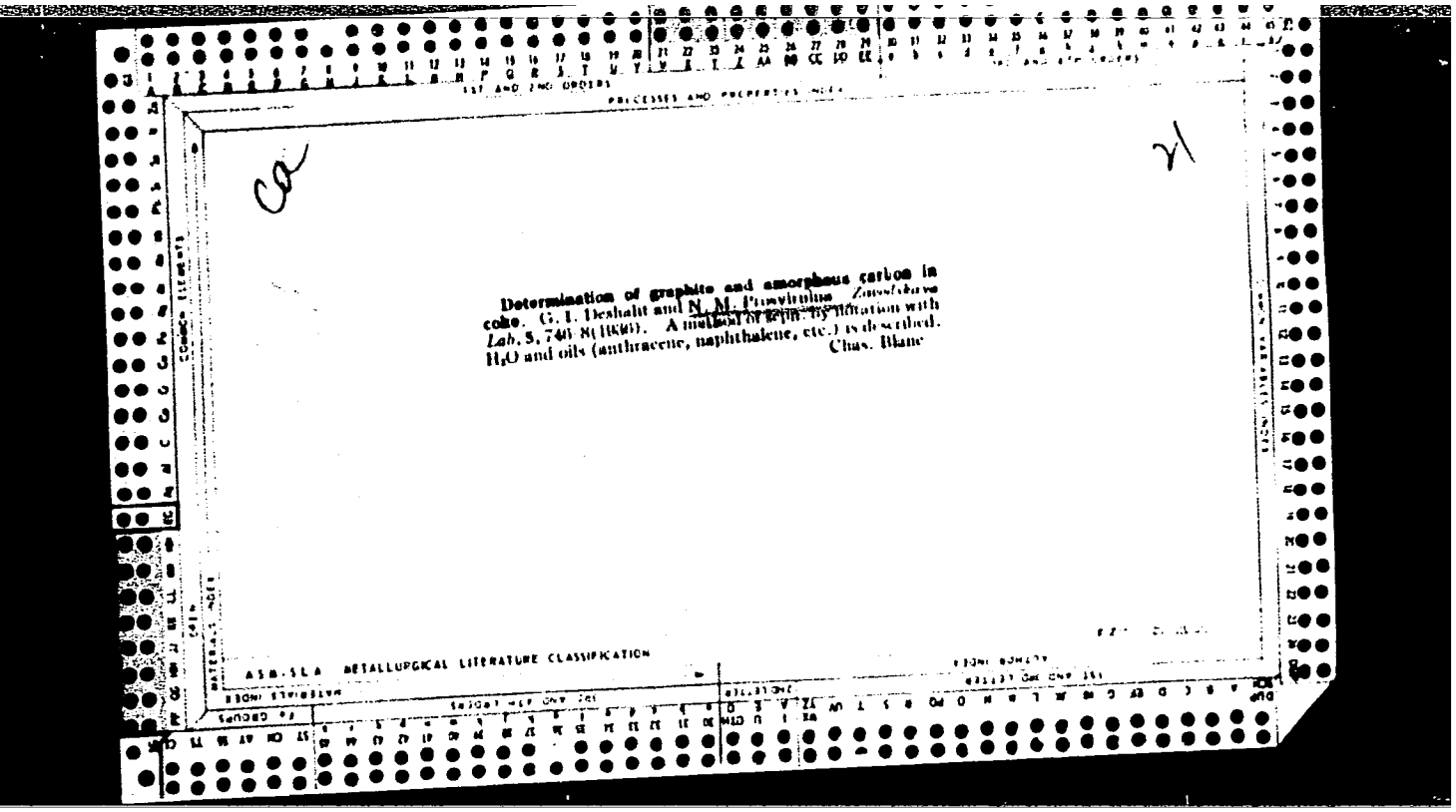
CA

21

Graphitic carbon and amorpheous carbon in coke. G. I. Dechalit and N. M. Provirnina. *Coke and Chem* (U. S. S. R.) **6**, Nos. 2-3, 9-11(1936); *Chimie & indus* **37**, 40.—Flotation methods permit of detg. the contents of different varieties of C in coke. Flotation conditions (time, rate of shaking, etc.) must be the same for all samples. It follows from the investigations carried out that coke is not homogeneous but is composed of several constituents having different properties. It comprises essentially a fraction which lends itself relatively easily to flotation and consists of graphite, and of a more difficultly flotable fraction composed of amorphous carbon.

A. Papineau-Couture

A1a-11A METALLURGICAL LITERATURE CLASSIFICATION



Determination of graphite and amorphous carbon in coke. G. I. Dzhalait and N. M. Tiuvintina. *Zavodskaya Lab.*, 5, 740-8(1936). A method of separation with H_2O and oils (anthracene, naphthalene, etc.) is described. Chas. Blanc

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROSVIRNITSYN, D.D., inzh.

Provide for a smooth motion of high-speed trains. Put' i put.khoz. 5 no.7:16-18 Jl '61. (MIRA 14:8)

1. Nachal'nik puteobsledovatel'skoy stantsii, g. Leningrad.
(Railroads--Track)

PROSVIRNITSYN, N.P.

Contribution of veterinarians of the Spass District, Ryazan Province, in increasing the amount of livestock products. Veterinariia 37 no.4:20-25 Ap'60. (MIRA 16:6)

1. Predsedatel' Spasskogo rayonnogo ispolnitel'nogo komiteta Ryazanskoy oblasti.
(SPASS DISTRICT (RYAZAN PROVINCE) —VETERINARY MEDICINE)

PROSVIRNOV, K. P., dotsent; TIKHOMIROVA, Ye. G.

Effectiveness of ambulatory chemotherapy in tuberculosis of the lungs. Probl. tub. no.3:58-63 '62. (MIRA 15:4)

1. Iz kafedry fakul'tetskoy terapii (zav. - prof. A. M. Yeliseyeva) Ivanovskogo meditsinskogo instituta (dir. - dotsent Ya. M. Romanov) i Frunzenskogo gorodskogo protivotuberkuleznogo dispansera (glavnyy vrach Ye. G. Tikhomirova)

(TUBERCULOSIS) (CHEMOTHERAPY)

PROSVIRNOV, K.P.

Changes in the cardiac function of tuberculosis patients under exercise therapy as shown by electrocardiographic data. Vop. kur., fizioter. i lech. fiz. kul't. 25 no.2:168-173 '60. (MIRA 13:9)

1. Iz legochnoy kliniki (zav. - kandidat meditsinskikh nauk V.K. Dargevich) Yaltinskogo instituta imeni I.M. Sechenova (direktor - prof. S.R. Tatevosov).
(TUBERCULOSIS) (HEART) (EXERCISE THERAPY)

PROSVIRNOV, K.P., kand.med.nauk

Effectiveness of sanatorium treatment of pulmonary tuberculosis patients with chronic pneumopleuritis. Sov.zdrav.Kirg. no.1:40-45 Ja-F '58. (MIRA 13:7)

1. Iz kafedry fakul'tetskoy terapii (zav. - prof. M.Ye. Vol'skiy) Kirgizskogo gosmedinstituta i Yaltinskogo instituta imeni Sechenova (dir. - prof. S.R. Tatevosov).
(TUBERCULOSIS) (PLEURA--DISEASES) (THERAPEUTICS, PHYSIOLOGICAL)

VAKULIN, A.A.; V'YUNOV, S.F.; GORIN, T.I.; IVASHCHENKO, P.S.; KOMOVA, A.G.; KORNEYEV, V.A.; KOROSTELEVA, M.Ya.; LOBACHEV, A.Ya.; LASHMANOV, I.Ya.; MALYCHENKO, V.V.; MOROZOVA, A.M.; PANSHIN, I.A.; PROSVIROV, A.S.; ROZHKOVA, M.V.; YUROVA, N.F.; FEDORENKO, V.P.; TSEKHMISTRENKO, P.Ye.; SHEVCHENKO, I.S.; FEDOROV, N.A., red.; IZHBOLDINA, S.I., tekhn.red.

[Brief manual on the cultivation of fruits, berries, and grapes and the management of nurseries in Stalingrad Province] Kratkii spravochnik po plodovo-iagodnym kul'turam, vinogradu i pitomnikam dlia Stalingradskoi oblasti. Stalingrad, Stalingradskoe knizhnoe izd-vo, 1960. 215 p. (MIRA 14:3)

1. Stalingrad (Province) Upravleniye sel'skogo khozyaystva.
(Stalingrad Province--Fruit culture)

S/123/61/000/003/012/023
A004/A104

AUTHORS: Severdenko, V. P.; Prosvirov, N. T., and Kovylyayev, N. P.

TITLE: Small-flash die-forging and the calculation elements of small-flash dies for body of revolution blanks

PERIODICAL: Referativnyy zhurnal, Mashinostroyeniye, no. 3, 1961, 7, abstract 3V48 ("Sb. nauchn. tr. fiz.-tekhn. in-t AN BSSR", no. 5, 1959, 66-69)

TEXT: The authors describe the advantages of small-flash die-forging over flashless forging and die-forging in open dies. They present the calculation elements for small-flash dies. There is 1 figure and 1 reference.

Ya. Golombik

[Abstractor's note: Complete translation]

Card 1/1

S/123/59/000/09/17/036
A002/A001

Translation from: Referativnyy zhurnal, Mashinostroyeniye, 1959, No. 9, p. 104, # 33628

AUTHORS: Yushkov, A. V., Prosvirov, N. T.

TITLE: The Mechanical Properties of Some Die Steels After Heat Treatment

PERIODICAL: Sb. nauchn. tr. Fiz.-tekhn. in-t AN BSSR, 1958, No. 4, pp. 95-104

TEXT: The authors investigated "5XHT" (5KhNT), "5XHB" (5KhNV), "7X3" (7Kh3) die steels after quench hardening from 850°C in oil and tempering at 350-700°C (at 50° intervals); "Y10" (U10) steel was also investigated. The mechanical properties in tensile and impact tests were determined at room and at tempering temperatures. The test for hot cracks (razgarnyye treshchiny) was performed by hammering (700 blows) a steel strip made of the steel under investigation, imitating a die. The highest heat resistance was found with 5KhNT steel. The greatest proneness to hot crack formation under thermomechanical effects was observed with U10 steel. The highest number of hot cracks in the steels under investigation were observed after tempering at 300°C.

Card 1/2

S/123/59/000/09/17/036
A002/A001

The Mechanical Properties of Some Die Steels After Heat Treatment

Hot cracks were not observed when tempering at 550°C (5KhNT steel) and at 650°C (5KhNV steel). There are 8 figures and 6 references.

F. M. A.

Translator's note: This is the full translation of the original Russian abstract.

VB

Card 2/2

S/137/60/000/010/017/040
A006/A001

Translation from: Referativnyy zhurnal, Metallurgiya, 1960, No. 10, p. 126, # 23455

AUTHORS: Severdenko, V.P., Prosvirov, N.T., Yushkov, A.V.

TITLE: The Effect of the Flare Groove Shape on the Wear Resistance of Open Dies

PERIODICAL: Sb. nauchn. Fiz-tekhn. in-t, AN BSSR, 1959, No. 5, pp. 70 - 76

TEXT: An analysis is made of thermomechanical factors assuring the durability of dies. It is experimentally shown that in the existing shapes of the flare groove the bridge is subjected to high stresses and heating up to high temperatures. To raise the wear resistance of open swaging dies, a new V-shaped flare groove is recommended. The industrial use of dies with such a groove showed that their durability had increased by a factor of 1.5 - 2.

M.Ts.

Translator's note: This is the full translation of the original Russian abstract.

Card 1/1

S/137/60/000/010/016/040
A006/A001

Translation from: Referativnyy zhurnal, Metallurgiya, 1960, No.10,pp. 123 - 124, # 23426

AUTHORS: Severdenko, V.P., Prosvirov, N.T., Gavrilov, M.Ye.

TITLE: On the Magnitude of Flare in Open Swaging Dies

PERIODICAL: Sb. nauchn. tr. Fiz.-tekhn. in-t, AN BSSR, 1959, No. 5, pp. 77-83

TEXT: The magnitude of flare should be determined by deviations from the rated dimensions of the blank and by the technologically required (guarantee) metal volume producing a resistance against metal outflow in the joint plane and assuring the accurate filling of the die impression. To assure a minimum magnitude of the guarantee metal volume, a V-shaped groove is recommended where, in proportion of the metal outflow into the flare, the forces impeding the outflow are increasing. The magnitude of the guarantee volume was experimentally established to be 2 - 5% of the forge work weight, when swaging forgings, having the shape of revolution bodies, by the upsetting method with low outflow, and using dies with a V-shaped flare groove. M.Ts.

Translator's note: This is the full translation of the original Russian abstract.

Card 1/1

PROSVIRNOV, K.P.

PROSVIRNOV, K.P., kand.med.nauk

Role of exercise therapy in the general sanatorial treatment of chronic and fibrocavernous pulmonary tuverculosis [with summary in French]. Probl.tub. 35 no.5:66-71 '57. (MIRA 10:11)

1. Iz legochnoy kliniki (zav. - kandidat meditsinskikh nauk V.K. Dargevich) Yaltinskogo instituta klimaterapii tuberkuleza imeni Sechenova (dir. - prof. S.R.Tatevosov)

(EXERCISE THERAPY, in various dis.
pulm.tuberc., med.gymnastics as part of sanatorial treatment)
(TUBERCULOSIS, PULMONARY, ther.
gymnastics in sanatorium)

PROSVIRNOV, K. P.

Prosvirnov, K. P.

"The significance of therapeutic gymnastics in the general complex sanitarium treatment of patients with fibrous-cavernous tuberculosis of the lungs in a state of sub-compensation." Khar'kov State Medical Inst. Yalta, 1956 (Dissertation for the degree of Doctor in Medical Science)

Knizhnaya letopis
No. 15, 1956. Moscow

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

A method of mechanical analysis of soils. B. V. Prosl

vinov. *Pedology* (U. S. S. R.) **1938**, No. 7-8, 1012-11;
Khim. Referat. Zhur. **1939**, No. 7, 66. A critical review.
The best method is the international method described
by Kaginskii, in which the soil is treated first with HCl,
then with NH_4OH and the soln. boiled for 1 hr., and analy-
sis is made with the use of Fedulov's pipet. The classifica-
tion of soils according to the results obtained by the
proposed method of analysis is also described.

W. R. Henn

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROSZT, JANOS

(B4(1,3,4))

(12)

Leipzig, Zeitschrift fur Physikalische Chemie, Vol 219, No 1/2, 1962

1. "Ultrasonic Behavior of Aqueous Solutions of Zinc Halides," Dr S.V. SUBRAHMANYAM of the Physics Department, S.V. University, Tirupati, India; (Article in English); pp 5-10.

2. "Physico-Chemical Study of the Complex Formation of Beryllium Ions with Organic Ligands," Arun K. BHATTACHARYA and G.J. RAO of the University of Saugor, Saugor M.P. (India). Present Address: Research Officer, Radiochemistry Division, Atomic Energy Establishment, Trombay, Bombay, 73; (Article in English); pp 11-16.

3. "Surface Area Measurements by the Method of Continuous Gas Flow. Development of Apparatus and Comparative Experiments," L.S. ETTRE, S. BRENNER and E.W. CIEPLINSKI, Perkin-Elmer Corporation, Instrument Division, Norwalk, Conn.; pp 17-35 (English summary)

4. "Association of Salts of Fatty Acids in Non-Polar Solvents," Prof Dr H. DUNKEN and Dr G. ROSSKOPF of the Institute of Physical Chemistry (Institut fur Physikalische Chemie), Friedrich Schiller University, Ricarda-Huch-Weg 16, Jena; pp 36-46

5. "Determination of Antoine Constants Independently of the Vapor Pressure Curve," Diplomate Engineer Dr Gyorgy KOLLAR and Prof Dr. Janos PROSZT of the Institute of Inorganic Chemistry, Technical College (Technische Hochschule), Gellert-ter 4, Budapest XI, Hungary; pp 47-52.

6. "Chlorination of Alkanes, III. Calculation of Concentration Distribution in Chain Reactions, Using as Example the Thermal Chlorination of n-Hexadecane," C. SCHNEIDER of the Institute of Organic Chemical Process Technology (Institut fur Verfahrenstechnik der organischen Chemie) of the German Academy of Sciences (Deutsche Akademie der Wissenschaften), Permoserstrasse 15, Leipzig O 5; pp 53-59.

7. "Activity of Boundary Layers, Adsorption and Mixed Adsorption (at Liquid Boundary Layers)," Prof Dr. K.L. WOLF and A.W. NEUMANN of the Institute of Boundary Layer Physics and Chemistry (Institut fur Physik und Chemie der Grenzflachen) Varientarl uber Hockenhausen; Director: Prof Dr. K.L. WOLF; pp 60-84.

1/2